

IN THE SPECIFICATION

Please enter the following amendments:

Page 10, line 4, after "101" insert --sometimes called a barrel,--.

Page 12, line 11, change "A", (first occurrence) to --An electromechanical locking mechanism provides a--.

IN THE CLAIMS

Please amend claims 25, 27 through 30, 32, 39, 41, 46, 50, 51, 54 through 56, 64, 65, 70, 76, 77, 85 and 89, and add claims 91 through 105, as follows:

1 25. (Four times Amended) A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;
4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess;
6 a bar interposed between said shell and said cylinder plug to reciprocate generally
7 along a radial plane between a first position engaging both said shell and said plug while obstructing
8 rotation of said cylinder plug within said recess, and a second position accommodating said

9 rotation[,];

10 said cylinder plug comprising:

11 a first base and a second base separated by an axial length of said cylinder plug from
12 said first base, said second base [bearing means for supporting] configured to support a cam;
13 and

14 an electrical operator borne by said cylinder plug and rotatable with said cylinder
15 plug, said electrical operator being electrically operable to respond to a control signal by
16 moving independently of said bar between one of a first orientation accommodating relative
17 movement between said bar and said cylinder plug and a second and different orientation
18 providing obstruction of said bar, and another of said first orientation and said second
19 orientation.

1 27. (Amended) The lock of claim 25, further comprised of a key retainer maintaining a
2 shank of a key within said cylinder plug during rotation of said cylinder plug relative to said shell.

1 28. (Twice Amended) The lock of claim 27, further comprised of a locking mechanism
2 borne by said cylinder plug, said cylinder plug being perforated by an aperture admitting reciprocal
3 travel of a key relative to said locking mechanism, and said locking mechanism obstructing
4 movement of said cylinder plug relative to said shell absent the key exhibiting a selected relation
5 with said locking mechanism.

1 29. (Twice Amended) The lock of claim 25, further comprised of a plurality of electrical
2 conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.

1 30. (Amended) The lock of claim 25, further comprised of a power source to energize said
2 electric operator, positioned to rotate with said cylinder plug relative to said shell.

1 32. (Twice Amended) The lock of claim 25, further comprised of a network of a plurality
2 of cylinder plugs including said cylinder plug, and a switching device controlling operation of said
3 network.

1 39. (Twice Amended) The lock of claim 25, further comprising:
2 a logic circuit generating said control signal in response to a comparison between a
3 code set within said logic circuit and a data signal applied to said logic circuit;
4 a conductor provided by said cylinder plug, conveying said data signal to said logic
5 circuit; and
6 said electrical operator moving [between] from said second orientation [and] to said
7 first orientation in response to said control signal.

1 41. (Amended) The lock of claim 25, further comprising:
2 a logic circuit borne by said cylinder plug, generating said control signal in response
3 to a comparison between a code set within said logic circuit and a data signal applied to said logic

4 circuit;

5 a conductor borne by said cylinder plug, conveying said data signal to said logic
6 circuit; and

7 said electrical operator moving between said second orientation and said first
8 orientation in response to said control signal.

1 46. (Twice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess;

6 a bar borne by said plug and rotatable with said plug relative to said shell, said bar
7 being interposed between said shell and said cylinder plug to reciprocate generally along a radial
8 plane between a first position engaging both said shell and said cylinder plug while obstructing
9 rotation of said cylinder plug within said recess, and a second position accommodating said rotation,
10 said cylinder plug comprising:

11 a first base and a second base separated by an axial length of said plug from said first
12 base, said second base bearing means for supporting a cam; and

13 an electrical operator being electrically operable to respond to an electrical control
14 signal by [moving] obstructing movement of said bar between said first position and said second
15 position in response to a first state of said control signal and by moving within a second and different

16 plane not coextensive with said radial plane in response to application of said control signal to
17 accommodate said movement of said bar in response to a second and different state of said control
18 signal.

1 50. (Amended) The lock of claim 46, further comprised of a plurality of electrical
2 conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.

1 51. (Amended) The lock of claim 46, further comprised of a power source energizing said
2 electric operator to move during said second and different state of said control signal, positioned to
3 rotate with said cylinder plug relative to said shell.

1 54. (Amended) The lock of claim 46, further comprised of:
2 said cylinder plug containing a keyway;
3 a memory borne by said cylinder plug and storing a code; and
4 a logic circuit comprising a memory storing a code, said circuit being borne by said
5 cylinder plug and generating said control signal in dependence upon correspondence between said
6 code and data borne by a key insertable within said keyway.

1 55. (Amended) The lock of claim [53] 25, further comprised of:
2 said cylinder plug containing a keyway;
3 a memory borne by said cylinder plug and storing a code; and

4 a logic circuit comprising a memory storing a code, said circuit being borne by said
5 cylinder plug and generating said control signal in dependence upon [said switching device and]
6 correspondence between said code and data borne by a key insertable within said keyway.

1 56. (Twice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess;

6 an elongate member interposed between said shell and said plug to travel generally
7 along a radial direction between a first position engaging both said shell and said plug while
8 obstructing rotation of said plug within said recess, and a second position accommodating said
9 rotation;

10 said plug comprising:

11 a first base perforated by an aperture, and a second base separated by an axial
12 length of said plug from said first base, said second base bearing means for supporting a
13 cam;

14 a logic circuit borne by said plug and rotatable with said plug, conveying said
15 data signal between said aperture to said logic circuit; and

16 an electrical operator responding to said control signals by moving in a second
17 direction not aligned with said radial direction between one of a first orientation obstructing

18 said travel and relative operable movement between said shell and said plug while said
19 electrical operator is contained wholly within said plug, and a second and different
20 orientation accommodating said travel and said relative operable movement between said
21 shell and said plug, and another of said first orientation and said second orientation.

1 64. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;

8 a bar interposed between said shell and said cylinder plug to travel generally along
9 a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a logic circuit generating an electrical control signal in response to a comparison
12 between a code set within said logic circuit and a data signal applied to said logic circuit;

13 an electrical conductor provided by said plug, conveying said data signal to said logic
14 circuit; and

15 an electrical operator borne by said cylinder plug and rotatable with said plug, said
16 electrical operator being electrically operable to respond to said control signal by moving

17 independently of said travel by said bar, between one of a first orientation providing obstruction of
18 said travel and a second and different accommodating said travel, and another of said first orientation
19 and said second orientation.

1 65. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;

8 a bar interposed between said shell and said cylinder plug to travel generally along
9 a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a logic circuit generating a control signal in response to a comparison between a code
12 set within said logic circuit and a data signal applied to said logic circuit;

13 an electrical conductor provided by said plug, conveying said data signal to said logic
14 circuit; and

15 an electrical operator comprising an armature, said armature being borne by said
16 cylinder plug and rotating around said longitudinal axis with said plug, said electrical operator being
17 electrically operable to respond to said control signal by moving independently of said travel,

18 between one of a first orientation providing obstruction of said travel and a second and different
19 orientation accommodating said travel, and another of said first orientation and said second
20 orientation.

1 70. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;

8 a bar interposed between said shell and said cylinder plug to travel generally along
9 a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a logical circuit generating said control signal in response to a comparison between
12 a code set within said logic circuit and a data signal applied to said logic circuit;

13 an electrical conductor provided by said plug, conveying said data signal to said logic
14 circuit; and

15 an electrical operator borne by said cylinder plug and rotatable with said plug, said
16 electrical operator being electrically operable to respond to an electrical control signal applied to said
17 electrical operator by moving along a geometrical construct other than to said radial plane between

18 one of a first orientation providing obstruction of said travel and a second and different orientation
19 accommodating said travel, and another of said first orientation and said second orientation.

1 76. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;

8 a logic circuit generating said control signal in response to a comparison between a
9 code set within said logic circuit and a data signal applied to said logic circuit;

10 an electrical conductor provided by said plug, conveying said data signal to said logic
11 circuit;

12 an elongate bar exhibiting a greatest longitudinal dimension along a second axis that
13 extends transversely to said first base and to said second base, said bar being interposed between said
14 shell and said cylinder plug to travel generally along a radial axis that is transverse to said second
15 axis, between a first position engaging both said shell and said plug while obstructing rotation of said
16 cylinder plug within said recess, and a second position accommodating said rotation; and

17 an electrical operator borne by said cylinder plug and rotatable with said plug, said
18 electrical operator being electrically operable to respond to said control signal by moving along said

19 radial axis between one of a first orientation providing obstruction of said travel and a second and
20 different orientation accommodating said travel, and another of said first orientation and said second
21 orientation.

1 77. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;

8 a logic circuit generating said control signal in response to a comparison between a
9 code set within said logic circuit and a data signal applied to said logic circuit;

10 an electrical conductor provided by said plug, conveying said data signal to said logic
11 circuit;

12 an elongate bar exhibiting a greatest longitudinal dimension along a second axis that
13 extends transversely to said first base and to said second base, said bar being interposed between said
14 shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug
15 and transverse to said second axis, between a first position engaging both said shell and said plug
16 while obstructing rotation of said cylinder plug within said recess, and a second position
17 accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to a control signal by moving between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

85. (Amended) An electromechanical lock cylinder, comprising:

an outer shell having a bore formed therein and a cavity extending from the bore into the shell;

a barrel disposed within the bore in the shell and being rotatable relative thereto;

a side bar cooperating between the shell and the barrel for selectively permitting and blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging the barrel and a second portion removably received in the cavity in the shell, the side bar being movable relative to the barrel;

wherein at least one electromechanical locking member is disposed within the barrel and is positionable in a barrel blocking position [which blocks] blocking rotation of the barrel with respect to the shell, and also is positionable in a non-barrel blocking position [which permits] blocking the side bar to be moved relative to the cavity in the shell to rotate the barrel with respect to the shell;

an electronically powered drive mechanism located within the barrel and cooperating with the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar moves out of the cavity

and engages the locking member [to rotate the barrel and operate the lock]; and

control means for activating the electronically powered drive mechanism in response to an authorized attempt to operate the lock cylinder.

89. (Amended) A rotatable lock barrel for insertion into a lock cylinder having a bore formed therein, the barrel comprising:

an elongated, generally cylindrically shaped barrel member having an exterior configured for receipt in a bore of a lock cylinder and an interior containing an electromechanical locking member, the barrel member having a recess formed therein;

wherein the locking member is disposed in the recess of the barrel member and is substantially entirely contained within the barrel member, the locking member including a groove and the locking member being movable to a position in which the groove of the locking [members] member is [aligned] placed in an alignment;

the recess in said barrel member being configured to receive at least a portion of a movable side bar of a lock cylinder to permit the side bar to move into and out of engagement with the groove of the locking member for selectively permitting and blocking rotation of the barrel member with respect to a lock cylinder when positioned therein;

an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking member to a position in which the groove of the locking member is [aligned] in said alignment.

1 --91. A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base
6 separated by an axial length of said cylinder plug from said first base, said second base disposed to
7 support a cam;

8 a bar interposed between said shell and said cylinder plug to reciprocate generally
9 along a radial plane between a first position engaging both said shell and said plug while obstructing
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a locking mechanism borne by and rotating with said cylinder plug, said locking
12 mechanism being interposed between said cylinder plug and said bar, and exhibiting a first
13 disposition hindering said reciprocation and, in response to insertion of a key in physical
14 conformance to said locking mechanism, exhibiting a second and different disposition
15 accommodating said reciprocation; and

16 an electrical operator borne by said cylinder plug and rotatable with said cylinder
17 plug, said electrical operator being electrically operable to respond to a control signal by moving
18 independently of said bar between a first orientation providing obstruction of said reciprocation by
19 said bar and a second and different orientation removing said obstruction.

1 --92. A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess;

6 a bar interposed between said shell and said cylinder plug to extend generally along
7 a radial plane between a first state engaging both said shell and said plug while obstructing rotation
8 of said cylinder plug within said recess, and a second state accommodating said rotation;

9 said cylinder plug comprising:

10 a first base and a second base separated by an axial length of said cylinder plug from
11 said first base, said second base configured to support a cam; and

12 an electrical operator comprising an armature borne by said cylinder plug and
13 rotatable with said cylinder plug, said electrical operator being electrically operable to
14 respond to a control signal by moving said armature independently of said bar, between one
15 of a first orientation providing obstruction of said rotation during said first state and a second
16 orientation accommodating independent relative movement between said bar and said
17 cylinder plug, and another of said first orientation and said second orientation.

1 --93. The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and

4 said armature comprising an exterior surface exhibiting a rest position between said

5 shell and said cylinder plug, said armature obstructing said rotation absent said conduction,
6 accommodating said rotation during said conduction, and accommodating said rotation until said
7 rotation returns said armature to said rest position after termination of said conduction.

1 --94. The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and

4 said armature comprising an exterior surface exhibiting a rest position with said
5 exterior surface extending between said shell and said cylinder plug while said cylinder plug is in
6 alignment with said shell in a locked condition, said armature obstructing said rotation absent said
7 conduction, accommodating said rotation during said conduction by withdrawing from said shell and
8 wholly into said cylinder plug, accommodating said rotation until said rotation returns said armature
9 to said rest position after termination of said conduction, and resuming said rest position when said
10 rotation restores said alignment.

1 --95. The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and

4 said armature comprising an exterior surface exhibiting a rest position between said
5 bar and said cylinder plug, said armature obstructing said rotation absent said conduction, said
6 armature accommodating said rotation during said conduction, and said armature accommodating

7 said rotation until said rotation returns said armature to said rest position after termination of said
8 conduction.

1 --96. The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and

4 said armature comprising an exterior surface exhibiting a rest position with said first
5 orientation while said exterior surface is interposed between said bar and said cylinder plug and
6 obstructs said rotation absent said conduction, said armature assuming said second orientation,
7 withdrawing from said interposition and accommodating said rotation during said conduction, and
8 said armature accommodating said rotation until said rotation returns said armature to said rest
9 position with said first orientation after termination of said conduction.

1 --97. The lock of claim 92, further comprised of:

2 a coil wound to provide conduction of an electrical current in response to said control
3 signal; and

4 said armature comprising an exterior surface exhibiting a rest position with said first
5 orientation while said exterior surface is interposed between said bar and said cylinder plug and
6 obstructs said rotation absent said conduction, said armature assuming said second orientation,
7 withdrawing from said interposition and accommodating said rotation during said conduction, and
8 said armature maintaining said second orientation and accommodating said rotation after said

rotation returns said armature to said rest position after termination of said conduction.

--98. The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position with said first orientation while said exterior surface is interposed between said bar and said cylinder plug and obstructs said rotation absent said conduction, said armature assuming said second orientation, withdrawing from said interposition and accommodating said rotation during said conduction, said armature maintaining said second orientation and accommodating said rotation after said rotation returns said armature to said rest position after termination of said conduction, and said armature resuming said first orientation during renewal of said conduction subsequent to said termination.

--99. The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position while in said first orientation absent said conduction with a first thickness of said exterior surface interposed between said bar and said cylinder plug and with said cylinder plug in alignment with said shell in a locked position, said armature exhibiting said second orientation and accommodating said rotation during said conduction with a second and lesser thickness of said exterior surface permitting

9 movement of said bar relative to said cylinder plug, and said armature accommodating said rotation
10 until said rotation allows said bar to reverse said relative movement and said armature to return to
11 said rest position after termination of said conduction.

1 --100. The lock of claim 92, further comprised of:

2 a logic circuit borne by said cylinder plug, generating said control signal in response
3 to a comparison between a code set within said logic circuit and a data signal applied to said logic
4 circuit; and

5 said electrical operator moving between said second orientation and said first
6 orientation in response to said control signal.

1 --101. A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising:

6 a first base and a second base separated by a mass and an axial length of said cylinder
7 plug from said first base, said second base being configured to support a cam, said mass
8 comprising a main body exhibiting a major exterior circumferential surface and a cylindrical
9 sector exhibiting a lesser and minor exterior circumferential surface supplementing said main
10 body to endow said cylinder plug with a substantially cylindrical exterior shape that is

removably insertable within said hollow recess;

an electrical operator encased within said axial cylindrical sector and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving between one of a first orientation obstructing rotation of said cylinder plug relative to said shell and a second and different orientation accommodating said rotation, and another of said first orientation and said second orientation; and

a logic circuit encased within said axial cylindrical sector generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit.

--102. A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising:

a first base and a second base separated by a mass and an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam, said mass comprising a main body exhibiting a major exterior circumferential surface and a cylindrical sector forming a module exhibiting a lesser and minor exterior circumferential surface supplementing said main body to endow said cylinder plug with a substantially cylindrical exterior shape that is removably insertable within said hollow recess; and

12 an electrical operator encased within and borne by said axial cylindrical sector, and
13 rotatable with said cylinder plug, said electrical operator being electrically operable to
14 respond to a control signal by moving between one of a first orientation causing obstruction
15 of rotation of said cylinder plug within said shell and a second orientation accommodating
16 said rotation, and another of said first orientation and said second orientation;

17 a bar interposed between said shell and said cylinder plug, spaced-apart from said
18 electrical operator and movable independently of said electrical operator between a first position
19 obstructing said rotation and a second and different position accommodating said rotation.

1 --103. The lock cylinder of claim 85, further comprising:

2 said side bar comprises a major elongate surface that defines a plane extending
3 approximately radially relative to said barrel; and

4 said locking member moving on an axis that is approximately perpendicular to said
5 plane.

1 --104. The lock cylinder of claim 89, further comprising:

2 a side bar that travels along a plane that extends approximately radially relative to
3 said barrel; and

4 said locking member moving on an axis that is approximately perpendicular to said
5 plane.

1 --105. The process of claim 90, further comprising:

2 orienting said side bar to travel along a plane that extends approximately radially
3 relative to said electronically powered rotatable barrel when engaging said locking member; and
4 positioning said locking member to move on an axis that is approximately
5 perpendicular to said plane when said locking member is selectively moved from said barrel
6 blocking position to said non-barrel blocking position.